

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

**(19) World Intellectual Property Organization
International Bureau**



**(43) International Publication Date
9 September 2005 (09.09.2005)**

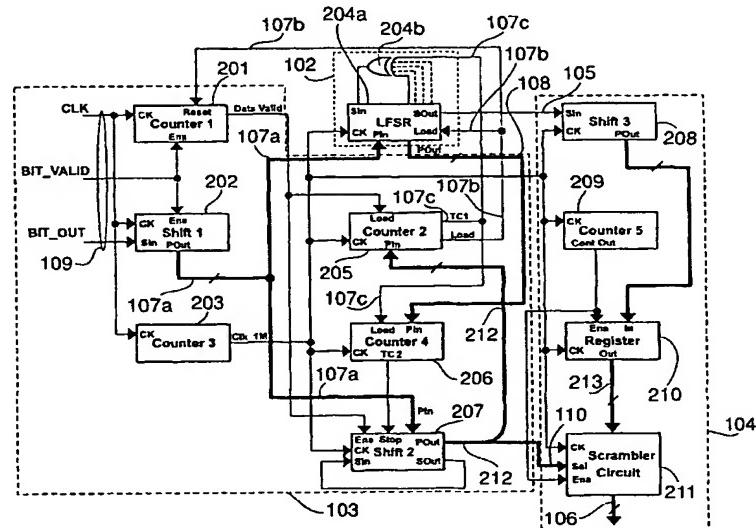
PCT

(10) International Publication Number
WO 2005/083561 A1

- | | |
|--|-------------------------------|
| (51) International Patent Classification ⁷ : | G06F 7/58 |
| (21) International Application Number: | PCT/EP2004/001928 |
| (22) International Filing Date: | 26 February 2004 (26.02.2004) |
| (25) Filing Language: | English |
| (26) Publication Language: | English |
| (71) Applicant (<i>for all designated States except US</i>): TELECOM ITALIA S.P.A. [IT/IT]; Piazza Degli Affari, 2, I-20123 Milan (IT). | |
| (72) Inventors; and | |
| (75) Inventors/Applicants (<i>for US only</i>): GHIGO, Giovanni [IT/IT]; Telecom Italia S.p.A., Via G. Reiss Romoli, 274, I-10148 Torino (IT). BOLLEA, Loris [IT/IT]; Telecom Italia S.P.A., Via G. Reiss Romoli, 274, I-10148 Torino (IT). | |
| (74) Agents: BATTIPEDE, Francesco et al.; Pirelli & C. S.p.A., Viale Sarca, 222, I-20126 Milano (IT). | |
| (81) Designated States (<i>unless otherwise indicated, for every kind of national protection available</i>): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW. | |
| (84) Designated States (<i>unless otherwise indicated, for every kind of regional protection available</i>): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG). | |

[Continued on next page]

(54) Title: METHOD AND CIRCUIT FOR GENERATING RANDOM NUMBERS, AND COMPUTER PROGRAM PRODUCT THEREFOR



WO 2005/083561 A1

(57) **Abstract:** A random number generator (100) uses the output of a true random generator (101) to alter the behaviour of a pseudo-random number generator (102). The alteration is performed by a mixing logic (103) that builds a random seed for the pseudo-random number generator (102) and comprises a generator of an alteration signal (TC1) the generation of which exploits the random instant of arrival of the bits outgoing from the true random generator (101). The alteration signal is obtained by processing the seed by means of the pseudo-random sequence.



JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

— *of inventorship (Rule 4.17(iv)) for US only*

Published:

— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.